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ABSTRACT

This paper on intervention research critically reviews evaluations of experimental procedures designed to effect changes in the language development of disadvantaged children. It includes a summary of intervention projects and survey of present knowledge and theory about language which constitute the rationale for such projects. Specific recommendations are made for the application of the findings in broader educational contexts. Although many educators agree that language is one specific area in which disadvantaged children need to catch up, they often disagree on the nature, importance, and antecedents of these deficiencies in language. The paper includes discussion of alternative views of language, methods of language assessment (language production, comprehension assessment, and standardized testing), a selective review of subcultural language differences, and a review of language intervention research (Project Head Start, Bereiter-Engelmann Program, etc.). In addition, the authors recommend specific educational practices. (Authors/JW)

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Interpretive Study I

RESEARCH ON LANGUAGE INTERVENTION FOR DISADVANTAGED CHILDREN: RATIONALE, RESULTS, AND RECOMMENDATIONS

BSCR 001-70

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FOREWORD

This is the first in a series of Interpretive Studies that will make available to the educational community the most recent findings of research on topics of major concern. The reports are intended to provide school personnel with bases for decision-making in planning their own school district research and in instituting new programs.

It is appropriate that the first of these reports should deal with language and language programs for young children, for language skills are basic in the educational process. The focus of this report on language intervention programs reflects the continuing concern with disadvantaged children and acknowledges the almost frantic efforts of the past few years to "do something" about their verbal skills.

The authors have put the problem in perspective by reporting not just the results of intervention projects but the varying views of language and language development that have created the current diversity of opinion and activity. More importantly, they identify directions for further activity that may be more productive. No educational procedure will ever be without its advocates and its opponents, but adequate evaluation of what is done, as suggested by the authors, can assure enlightened controversy.

Special thanks are due to Vernon C. Hall, Associate Professor in Psychology at Syracuse University, and Michael Mery, Assistant

Professor in Psychology at Mary Washington College, Frederickburg, Virginia, for offering their expertise to the schools through the writing of this report. Dr. Hall is a specialist in child development, Research Coordinator and Investigator for the Syracuse component of the National Laboratory in Early Childhood Education, and head of the Educational Psychology Program at Syracuse University. Dr. Mery specialized in child development in his graduate work at Syracuse University where he also had extensive training in psycholinguistics.

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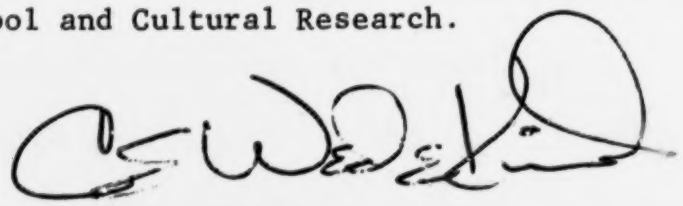

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INTRODUCTION

This paper on intervention research critically reviews evaluations of experimental procedures designed to effect changes in the language development of disadvantaged children. It includes a summary of intervention projects and a survey of present knowledge and theory about language which are the rationale for such projects. Specific recommendations are made for the application of the findings in broader educational contexts.

Intervention can be generally defined as any special training program designed to improve the school achievement of children who from past information on similar groups are expected to have substantial educational difficulties. These children have been termed "culturally disadvantaged," "educationally disadvantaged," and "culturally" or "educationally deprived." Operationally, these classifications refer to lower socioeconomic class children from various subcultural groups.

The fundamental assumption underlying most intervention projects has been that disadvantaged children are deficient in environmentally induced, educationally relevant skills which are learned prior to beginning school. Intervention, which is usually introduced at the preschool level, is designed to help these children "catch up" so that they will be able to perform to some acceptable school-defined standard. A complementary approach at school age is integrating deprived children with middle-class children in the hope that exposure to a culturally more heterogeneous environment and an educationally more demanding one will improve educational performance. Another approach to meeting pupil needs is ability grouping. But, in culturally heterogeneous schools, ability grouping can result in segregated education. Both desegregation and ability

grouping are deplored by some educators and psychologists who feel that by the age of school entry it is too late to bring about necessary changes by merely changing school or classroom groupings.

In attempting to specify the skills disadvantaged children need to catch up, many educators have agreed that language is one specific area in which they are deficient. There has been, however, much disagreement concerning the nature, importance, and antecedents of their deficiencies. The following sections will clarify the basis for these disagreements and how they relate to educational intervention.

ALTERNATIVE VIEWS OF LANGUAGE: CONTRASTING OBJECTIVES

Researchers concerned with language use and language intervention fall into two general groups which are not mutually exclusive. One group, composed of psychologists and educators, is principally concerned with the use of language for cognitive purposes. Within this group there is great diversity, the educator concerned that the child be able to solve problems, the child psychologist interested in how language aids cognitive development, the social psychologist concerned with language use as an indicator of social position. Each of these investigators is concerned with speech, the index of the process of language, and how speech and language relate to psychological processes.

The second group of this somewhat arbitrary but useful dichotomy is composed of individuals concerned with language per se, as a system. The members of this group are called "developmental linguists" or "developmental psycholinguists"; they may, in either case, omit the word "developmental" if they focus on the language of the linguistically mature adult. The developmentalists emphasize the acquisition of language and the

adequate description of the language system at various points during acquisition. Many linguists and psycholinguists are interested in the relationships between language and psychological processes, but not usually in terms of their educational ramifications. Their central concern is describing the structure of language rather than its content. Vocabulary size, culturally related differences in vocabulary use, and the like are not of principal interest. This means that what is said is secondary; the structural attributes of what is said are primary. Language structure includes several levels: sound patterning, phrase structure, and underlying grammatical structure. The acquisition of grammatical structure is of special interest since the grammatical system is viewed as the means by which sound and meaning are linked.

The mutual relevance of the two positions described above may be summarized in the following way. Educators and psychologists are vitally concerned with the implications of how language is used. Certain groups of children have educational problems seemingly associated with language differences and/or deficiencies. To understand these differences or deficiencies, one must understand the language process. The linguist brings information of great relevance to this task. For instance, there are apparent grammatical differences associated with ethnic group and/or class membership. For cognitive and educational purposes, one needs to determine whether these differences indicate differences in (1) language use or (2) language ability. An example in arithmetic will illustrate the point. Two children may perform a division problem in different ways. If both get the correct answer, one may reasonably infer that both understand the process of division but manifest or use that process differently, as in (1) above. On the other hand, if one of the two children cannot arrive at a solution

(ruling out such problems as memory and momentary distraction), then one infers deficiency or lack of ability as in (2) above. With respect to language use, until the last few years most psychologists and educators were of the opinion that apparent class-related grammatical differences were indicative of language deficiency. However, the current work of linguists and psycholinguists, which will be discussed later in this review, suggests that if there are culturally related language deficiences, they are unlikely to be grammatical in type. Clearly, this sort of information is important to the psychologist and educator concerned with language intervention programs.

Lenneberg (1969, p. 643) has aptly summarized the interests and potential contributions of the various groups concerned with language:

> Linguists, particularly those developing generative grammar, aim at a formal description of the machine's behavior; they search mathematics for a calculus to describe it adequately. Different calculations are matched against the behavior to test their descriptive adequacy. This is an empirical procedure. The raw data are the way a speaker of a language understands collections of words or the relationships he sees. A totally adequate calculus has not yet been discovered. Once available, it will merely describe, in formal terms, the process of relational interpretation in the realm of verbal behavior. It will describe a set of operations; however, it will not make any claims of isomorphism between the formal operations and the biological operations they describe.
>
> Biologists try to understand the nature, growth, and function of the machine (the human brain) itself. They make little inroads here and there, and generally play catch-as-catch-can; everything about the machine interests them (including the descriptions furnished by linguists).
>
> Traditionally, learning theory has been involved neither in a specific description of this particular machine's behavior nor in its physical constitution. Its concern has been with the use of the machine: What makes it go? Can one make it operate more or less often? What purposes does it serve?
>
> Answers provided by each of these inquiries into language are not intrinsically antagonistic, as has often been

claimed. It is only certain overgeneralizations that come into conflict. This is especially so when claims are made that any one of these approaches provides answers to all the questions that matter.

METHODS OF LANGUAGE ASSESSMENT

Language assessment may deal with language use, the concern of psychologists and educators, or language structure, the concern of linguists and psycholinguists. The method of assessment used will depend on what is being investigated. In either case, the assessment may focus on language production (speech) or language comprehension.

Language Production

Free speech. The first broad methodological technique for assessing language production is free speech recording. In such recordings, the child's speech is self-determined in form and content, i.e., it is free. The preferred environment for free speech recording is one that is "natural" to the child's age and background. It is, simply, a situation in which the child will feel free to talk. The content and, to some degree, the structure of the child's speech will vary in some systematic way as a function of the particular "natural" environment in which he finds himself. Using small wireless transmitters to record speech samples contributes to a "natural" environment by not restricting the child's movement.

After free speech data are gathered, various analytic data reduction techniques are available to the investigator. One technique, surface structure description, is concerned with such apparent features as phrase types and sound patterns. Surface structure description was used extensively in early studies of language development (McCarthy, 1954, 1959) and continues to be valuable as a first step in writing transformational

grammars.

Another analytical measure employed by psychologists and psycholinguists to indicate developmental status is mean utterance length. The first problem with this procedure is deciding what the unit of measurement will be. Since time per se is not likely to be a reliable indicator, then some other discrete unit must be used.

The usual way to measure utterance length is to count the number of morphemes. Morphemes are the smallest meaning elements of a language. There are two types of morphemes--free and bound. Free morphemes are units of meaning that can stand alone, e.g., car, boat, elephant. They are irreducible words for if anything is taken away they no longer make sense. Bound morphemes are forms that never stand alone but are added to free morphemes to change their meaning e.g., the /-s/ added to a noun to form the plural as in cars, the /'s/ which shows possession, and the /un-/ which conveys the meaning "not." Applying these definitions in determining utterance length, it will be seen that the phrase "the red books" is four morphemes long. Mean utterance length is a fairly reliable index of the developmental level of the 2-or 3-year-old child in the process of acquiring language.

A third method used to describe free speech is a vocabulary count indicating parts of speech used. A somewhat more sophisticated variation of this procedure is a type/token ratio which reveals the relative frequency of various parts of speech. The type/token ratio is the number of different kinds of items in a sample in proportion to the sample size.

Elicited speech. The second major technique for assessing language production is speech elicitation. Whereas in free speech recording every effort is made to minimize environmental constraints, in speech elicitation

the investigator imposes constraints for the purpose of observing certain kinds of speech. Speech elicitation overcomes some of the obvious collection difficulties of free speech recording. It permits a researcher to acquire new information and to verify findings of free speech recording.

The most frequently used elicitation procedure is imitation. In imitation, the first step is to construct utterances in which a given grammatical pattern is systematically represented and varied. The child is then instructed by the investigator to, "Say what I say." The investigator says the previously constructed utterances in a normal tone of voice and at a normal rate. The child's imitative responses are recorded and then analyzed in terms of the types of normalizations the child imposes while attempting to imitate. Normalizations are changes imposed by the child that are presumed to be consistent with his grammar. For instance, Adult: "Adam, say what I say: 'The boy can't have supper, and the girl can't either.'" Adam: "The boy can't have no supper, and the girl can't have none either." If the investigator observes that such changes in construction occur in a systematic and predictable way across a variety of utterances, he may then infer the rules necessary to account for the changes.

The following is another imitation example of relevance to subcultural differences: Adult "I am a boy." Child: "I is a boy." The manner in which the verb is manipulated by the child is different from standard English. If this pattern is systematically used, the investigator may infer that the child is in no way deficient with respect to his language ability in coping with this verb form. The systematic change observed presupposes adequate comprehension (Brown and Fraser, 1964: Menyuk, 1963).

Labov and Cohen (1967) have used speech elicitation with Harlem

teenagers, demonstrating that the procedure is applicable to a wide age range. These investigators inferred that their Harlem subjects could and did comprehend standard English because they correctly translated the utterances to be imitated into their own dialect. Meaning was preserved while some structural attributes were changed in systematic ways.

Speech elicitation procedures allow an investigator to probe for language patterns which may occur very infrequently in free speech. They are, therefore, more economical of time and resources than free speech recording. It should be clear, however, that the most fruitful use of elicited imitations presupposes that the investigator has considerable prior knowledge, usually based on free speech recordings, of the child's language ability and use.

Transformational grammars. For the linguist concerned with the structure of language and the course of language acquisition, the major current interest is the attempt to write a developmental transformational grammar. Here both free speech and elicitation techniques are used. The linguist infers from the child's speech the underlying grammatical structure necessary to account for that speech. The structure, a transformational grammar, is conceived as a set of hierarchically organized rules. These rules are not acquired by the child in any explicit way and neither a child nor an adult can tell what the rules which underlie language production and comprehension are. The existence of the rule system and the child's understanding of it are implicit in his behavior; he acts in an "as if" manner.

The concept of a transformational grammar is regarded by many as necessary for any adequate explanation of the acquisition and continuing function of language in the human being. It is held that rote memory or

simple imitation cannot in themselves account for language behaviors or the speed with which they are learned.[1] The goals of the developmental linguist are (1) to describe the transformational grammar which will account for current language use and (2) to make predictions about further changes in the grammar as seen in further changes in language use. Obviously, the second of the two goals is the more difficult, although some successes have been achieved. Detailed descriptions of the writing of transformational grammars are given in Brown and Bellugi (1964), Ervin and Miller (1964), and Braine (1963). A general review of current data and an excellent theoretical statement has been prepared by Menyuk (1969).

Comprehension Assessment

The assessment of comprehension may focus on (1) structure or (2) content communication, depending on the concern of the investigator.

Structure. Some investigators believe that language comprehension is a better indicator of the complexity of the underlying language system

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[1] The problem of imitation in language acquisition is a very complex one, and the authors are not implying that it should be dismissed. This complexity is illustrated by the following example: Adult: "Your finger is bleeding." Child: "I've got two bleeds." The reader will recognize the type of example chosen and the fact that the child is not imitating an adult in his environment if imitation is defined as copying specific observable behaviors. If one considers the possibility that the child is imitating the common practice of using a verb as a noun and pluralizing that noun by adding /s/ (hence, "bleeds"), then one may conclude that he is indeed imitating. It is clear, however, that in this example what is being imitated are nonobservable structural features of the language. It should also be noted that when the adult responds to such "error," he usually responds to perceived meaning and not to the structural peculiarities of the child's utterance (Brown, 1968). Thus, reinforcement is contingent on meaning and not on correct structure. Yet the child acquires structure very rapidly. This is one of the issues raised by linguists and psycholinguists which psychologists and educators must face.

than is speech.[2] In testing comprehension, it is necessary to create a situation where the subject is not required to respond verbally. One such nonverbal procedure is to present pictures correctly and incorrectly illustrating an utterance and have the child pick the correct one (cf. Fraser, Bellugi, and Brown, 1963). For instance, the utterance, "The boy was pulled by the girl," could be illustrated by a girl pulling a boy in a wagon. An alternative picture would show a boy pulling a girl in a wagon. In this example, the passive word order contradicts the usual circumstance where the first noun in a sentence is the subject of the sentence. Thus, "The boy was pulled by the girl" is a paraphrase for "The girl pulled the boy." The picture chosen by the child would indicate whether or not he understood the grammatical construction, in this case, the passive.

Content communication. As noted earlier, psychologists and educators are primarily concerned with the adequacy of content communication. The structural features of language and language use interest them only as they contribute to content communication. Consequently, structural features will be of most interest when differences and/or deficiencies are thought to interfere with communication. An investigative procedure consistent with this position is the referential communication task developed by Krauss and his coworkers (Krauss and Rotter, 1968; Glucksberg, Krauss and Weisberg, 1966; Glucksberg and Krauss, 1967). Subjects are asked to

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2 Here the reader is urged to use his own personal experience as a guide. It is likely that everyone has been exposed to speakers whose language use was of apparently greater complexity then his own. Yet, usually one can with little difficulty understand such speakers. For instance, one could understand the sentence, "The car the man sold broke down," although it is unlikely that many would ever express themselves in this way.

name or describe six ambiguous line figures. Although the task may be administered in a variety of ways, the usual procedure is to have one subject act as a communicator and describe or name the figures. Another subject, the listener, attempts to pick out the figures on the basis of the verbal descriptions. The role of the communicator or the listener can, alternatively, be taken by the experimenter, with the subject taking the opposite role. This task has been used to determine if there are any identifiable subcultural differences with respect to communicator and listener ability. The present writers have found from their own work and from other raw data that there are some problems when the subject is instructed to simply name the figures. For instance, two subjects may give the same name to different figures. This leads to the possibility that a listener will be scored correct with one communicator and incorrect with the other; in the first instance he is an "adequate" listener, in the second an "inadequate" one. Similar difficulties may be encountered by the communicator. The present writers do feel, however, that the technique is a potentially valuable one if the subject's task is clearly defined, e.g., if the subject is instructed to give a full description of each of the figures in turn.

A related procedure which has also been used to assess aspects of language proficiency is the "Cloze" technique. In this case the subject is asked to supply the missing word in a sentence on the basis of context. His response provides the investigator with information on the degree to which he is able to make effective use of the redundancy of a sentence. For instance, the stimulus, "The man was driving a new, red, hook and ladder ____truck," could be expected to prompt the reply, "fire." If, however, the sentence was "The man was driving a new, red ____truck,"

there would be more options, and the response would be less predictable. The investigator has great flexibility in choosing what sorts of words to omit and the manner in which the data are to be analyzed. He may, for instance, be interested in various structural features and may define the correct choice as the specific word, the same part of speech, or any one of several alternatives.

Standardized Testing

The assessment procedures described above offer many possibilities for evaluating language intervention programs. However, to date, the technique most frequently used to gauge the effect of intervention is standardized testing.

Standardized test instruments are convenient for the time required for administration and analysis is relatively short, the tests are well known, and they are readily available. The tests used are of two types: general IQ tests and tests of language development which are also considered indicators of intellectual capacity.

Intelligence tests. The standardized test most commonly used in evaluating language intervention programs for young children is the Stanford-Binet Intelligence Scale. Before considering some specific points on the Binet, a comment is needed on the reasoning behind this application of intelligence testing.

Through various statistical analyses, a psychologist may come to the conclusion that an intelligence test has a very important language factor. This language factor may also be seen as referring to language capacity, a quite reasonable interpretation. However, language capacity in this context is far different from the structurally defined language capacity referred to by the linguist. The language capacities inferred from

intelligence testing may be thought of as cognitive abilities for which language is a necessary, but not a sufficient condition. Thus, when general intelligence tests are used to assess possible change resulting from language intervention, the relationship of the intervention to the assessment technique is very indirect. Ideally there should be a strong explicit theoretical position supporting the use of a particular test. Unfortunately, this requirement is seldom if ever met.

The frequent use of the Stanford-Binet in assessing language intervention programs has come about because (1) no other single test instrument has greater power to predict academic achievement and (2) many believe that if one can raise a child's intelligence, something worthwhile has been accomplished.

The first reason bears some examination. The predictive power of the Stanford-Binet rests on substantial correlations with grades (Anastasi, 1961). However, this predictive ability has been demonstrated in the absence of any formal intervention program (apart from regular school attendance) and any test-retest familiarity on the part of the child. Obviously, the conditions under which the Stanford-Binet has predictive power are not met when it is used as a pre-post measure to assess intervention effectiveness. This raises a fundamental question about the usefulness of post treatment scores as indices of future academic achievement.

The above observation has bearing on the second reason for using the Stanford-Binet--the desirability of increasing the IQ. It is assumed that a change in test scores resulting from an intervention program reflects a change in some underlying capacity. This assumption is subject to debate. Weikart (1969, p. 5) states:

> Data from intelligence tests indicate the immediate impact of the programs upon the general level of functioning of the children involved. Scores are no way considered to be indicative of changes in innate ability or potential capacity.

The present authors would point out that whichever position is taken, it should be made explicit, so that the reader is aware of the researcher's views.

Another issue in the use of the Stanford-Binet is determining the underlying psychological dimensions which result in observable test responses and their relevancy for the assessment of language intervention programs. The technique of factor analysis has indicated that for 2-to 4-year-old children, the single most important factor in the Binet may be that of general persistence on the part of the subject. Above age 4, this factor is supplanted by another general factor called "symbol manipulation" (Hofstaetter, 1954). This shift suggests that the underlying linguistic dimensions are much more complex than simple vocabulary acquisition. Confirmation of the notion that simple vocabulary growth is not critical to the underlying structure is offered by Wellman and McCandless (1946) who found that although vocabulary size was related to intelligence in children from 35 to 58 months of age, change in measured intelligence was not related to vocabulary change. Thus, if "verbal" factors do underlie intelligence, they are likely to be much more complex than is frequently assumed.

Use of the Stanford-Binet involves practical as well as theoretical considerations. Zigler and Butterfield (1968) have shown that the conditions under which IQ tests are given can significantly influence the scores obtained from your children. The child's knowing the tester can also have a major influence on test results. Finally in working with the deprived, one must consider the possibility of systematic subcultural

differences on motivational variables and in the value given to high performance in test situations.

Language tests. The Peabody Picture Vocabulary Test (PPVT) is the second most frequently used standardized instrument for assessing language intervention projects. The test requires that the child identify the correct picture from a choice of four in response to the examiner's instructions to, "Point to___." There are three practice and 150 test questions. With a ceiling of six incorrect answers out of eight consecutive items, the test usually takes less than 15 minutes. A major problem with the PPVT is that the standardization group was limited to 400 white subjects from Nashville, Tennessee. Additional questions can be raised about the test's adequacy for assessing language proficiency as it measures only vocabulary. The limitations of vocabulary as a language index have been previously noted in connection with the Stanford-Binet. The PPVT does correlate positively and substantially with the Stanford-Binet and would be the instrument of choice only when the Binet could not be given. (See Lyman, 1965, for a review of the Peabody.)

The Illinois Test of Psycholinguistic Abilities (ITPA) has also been used to assess language intervention (McCarthy and Kirk, 1963). The initial experimental version of this individually administered instrument for children ages 2 to 9 consisted of nine subtests. A newly revised standardized version with 10 subtests has recently been made available. The subtests are all directly related to Osgood's theory of communication and are thought to index receptive, expressive, and organizing processes. The ITPA does not relate in any substantial way to socioeconomic class, according to the data available at this time. It is recognized that many of the subtests are significantly related to mental age (IQ test

scores).[3] The ITPA was developed for diagnostic purposes and much of the work with the test has been with middle-class children with various kinds of learning problems.

SELECTIVE REVIEW OF SUBCULTURAL LANGUAGE DIFFERENCES RELEVANT FOR INTERVENTIONISTS[4]

This section briefly reviews the literature on subcultural differences in language which may influence educational performance.

A descriptive account of possible differences in language use does not necessarily tell (1) whether patterns of use should be changed for educational reasons or (2) what some of the successful intervention procedures might be if change is warranted. Within this context, intervention may be seen as a way of determining whether an observed difference is important. Such a determination implies that one specify and document the observed difference, the attempted intervention, and the observed changes resulting from intervention.

A major stumbling block to the understanding, design, and assessment of language use and language intervention research is the frequently

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[3] The interested reader is referred to McCarthy and Kirk (1963) and McCarthy and Olsen (1964). Data of specific relevance to the use of the test as a diagnostic instrument aregiven in Sievers, McCarthy, Olsen, Bateman, and Kass (1963).

[4] Care must be exercised in deciding whether differences are also deficiencies. Some people (Baratz and Baratz, 1969: Sroufe, 1970) argue against intervention on the grounds that one subculture is being discriminated against by being forced to conform to the other's standards. Although the present authors do not necessarily agree with this position, they do feel that interveners must have firm bases for believing their programs are correcting deficiencies relevant for improved school performance.

implicit assumption that the "culturally disadvantaged" form a homogeneous group. If this assumption is made, it becomes very easy to presume that one type of intervention will bring about advantageous change for everyone. All one need do is find the "right" procedure. Unfortunately, this position finds no support. There is no more homogeneity among the "culturally disadvantaged" than among the "culturally advantaged," whoever they may be. This is readily seen when one considers those typically described as disadvantaged: Negroes, whites, Puerto Ricans, Mexican Americans, and Chinese from inner cities and their rural counterparts who are in some sense "poor." Furthermore, there is likely to be as much variability within these groups as between them. With this diversity, the results of any single investigation of subcultural differences of apparent educational and psychological import may be generalizable only to comparable groups with the same characteristics on such critical factors as race, ethnic group membership, native language, family structure, and financial status.

It is very difficult to define the criterion against which to judge a given subculture's language. Many would accept as a benchmark Fries' (1940, p. 13) description of "standard" English:

> .... a set of language habits, broadly conceived, in which the major matters of the political, social, economic, educational, religious life of this country are carried on...the particular type of English which is used in the conduct of the important affairs of our people.

This is a broad consensually defined standard, and the deviations from such a norm that will be considered socially relevant will vary in type and extent from region to region and even from city to city. Further, whether a deviation is of import will depend on the speaker's social role of the moment as well as his general position within the social structure.

Deviations from such a general standard certainly cannot be considered as deficiencies except in some idealized social sense. Thus, a kind of social judgment is made when the speaker of one dialect labels another's dialect as substandard. In a classroom setting where there are dialectical differences between the teacher and the child, the teacher's reaction to these differences may have educational ramifications. However, the social judgment which may be made by the teacher does not directly concern the adequacy of the child's dialect for cognitive purposes. Admittedly, the distinction between social acceptability and cognitive adequacy is difficult to make experimentally. The authors feel strongly, however, that the interventionist-researcher must make this distinction.

The importance of the above argument can be seen when one considers how the culturally disadvantaged are defined. Generally, a child is placed in the culturally disadvantaged group because of anticipated educational difficulties. These are projections of the past educational performance of other members of his race, ethnic group, and/or socio-economic class. When one talks of culturally disadvantaged children, he is most likely referring to urban poor Negroes. This does not represent bias for or against any particular group; it does reflect the fact that urban poor Negroes are among the most deprived and make up the largest and most visible group. From this identification, one frequently moves on to talk of language usage differences or deficiencies, using as the standard of comparison the urban (or suburban) middle-class white. As previously discussed, such comparisons are likely to be suspect particularly when the possible problems of the comparison are not explicitly discussed. For instance, these two groups may differ in some important respects independent of social class or language use. Fortunately, many professional

journals, e.g., Developmental Psychology, now require authors to supply both race and class characteristics for all subjects studied.

Linguistic Differences

There is currently general agreement among many linguists on the broad propositions that (1) the structural differences between dialects spoken in this country are relatively superficial and (2) these differences can best be represented by rule differences which occur near the surface in a transformational system (Bailey, 1967; Baratz, 1968; John, 1967; Labov, 1967a, 1967b; Labov and Cohen, 1967; Stewart, 1967). For instance, Baratz (1968, p. 144) asserts that

> .... /the/ most fruitful way of studying the language of the economically disadvantaged child is to regard his system as a totally developed but in some ways different system from standard English which is spoken by the middle-class population.

There is also general agreement among educators that teachers should be aware of differences in language use. Stewart (1967, p.1), suggests that this recognition is growing and notes that:

> .... one indication of the readiness of the schools /to solve language problems/ is the fact that traditional English teachers are rapidly abandoning the older "sloppy speech" and "lazy tongue" views of nonstandard speech in the face of a realization that it usually represents the speaker's use of some language system, although it may differ from standard English in form and sometimes even in function, it is nevertheless logical, coherent and grammatical.

One illustration of a dialectical difference used earlier in this paper is the shift from "I am a boy" to "I is a boy" in an imitation task. The nonstandard use of the latter verb form is as systematic in some subcultural groups as is the standard use in other groups. However, the nonstandard form "sounds" different to middle-class ears. The quality of "sounding different" may be socially very important; it is unlikely that

it is of much linguistic or direct cognitive importance. The question still remains, "Are there language differences which hamper the disadvantaged child and, if so, in what ways?" John (1967, p. 15) states the problem by saying:

> It appears that basic to the theoretical and practical dilemma of the interventionists is their lack of differentiation between language as a communicative process and language as an intellective (intrapersonal) process, a confusion which reflects that lack of detailed scientific information concerning the latter phenomenon.

She adds (John, 1967, p. 15) that:

> We teach low-income children, often by means of pattern drills, the language forms used by their middle-class age mates, because the latter excel in tasks of abstraction.

Research evidence from a number of studies indicates there is a common tendency for speakers of one dialect to impose their own speech patterns on materials from another dialect. However, there is no common agreement on the significance of these findings and their implications for cognitive functioning and communication.

As noted earlier, Labov and Cohen (1967) used a sentence imitation task with Harlem teenagers. Their subjects, boys 11 to 14 years old systematically translated utterances in standard English into their own dialect. From this, Labov and Cohen (1967, p. 82) argued that:

> ...in Harlem, both standard and nonstandard rules are part of a larger linguistic structure which governs the shift between them... Furthermore, the competence /linguistic ability/ of native speakers of the nonstandard vernacular clearly includes the ability to perceive, abstract, and reproduce the meaning of many standard forms which they do not produce.

The further implication of their position is that if the individual can "translate" from one dialect variation to another he must understand or comprehend the dialect which is not his own.

Baratz (1969) also used an imitation task in studying the language

proficiency of Negro third-and fifth-graders. However, her research included lower-middle-income white children from a suburban school as well as low-income black children from an inner-city school. Both groups were asked to imitate sentences in standard English and in Negro dialect. It was found that the white children performed significantly better than the Negro children on the standard English sentences, while the Negro children were significantly better on the nonstandard materials. Both Negro and white children tended to translate the utterances from the unfamiliar dialect into their own dialect. The uniformity of the "errors" of the Negro children in imitating standard English sentences supported Baratz's contention that the Negro child has a structured language system with well-ordered rules; that he is not linguistically deficient but different.

Neither the Labov-Cohen nor the Baratz study specifically examined the question of comprehension. This has been included with an imitation task in a study by Osser, Wang, and Zaid (1969). The subjects in this investigation were 5-year-old white middle-class and Negro lower-class children. The children were all asked to imitate 26 sentences representing 13 syntactic structures in English grammar. Comprehension was tested by having them pick from sets of three pictures those which correctly illustrated the imitation sentences. The examiner who administered both parts of the test was a standard dialect speaker. The white middle-class children significantly outperformed the Negro lower-class children on both imitation and comprehension. The difference on the imitation task was still significant when scores were adjusted for known dialect variations. Again, it was found that the Negro subjects did impose recognized differences in their own dialect on the sentences to be imitated. This phenomenon occurred whether or not performance on the

parallel comprehension task was correct. This finding contradicts Labov's previously cited implication that translation from one dialect to another is indicative of comprehension.

Osser (1966) had previously applied transformational grammar in an analysis of speech samples of 5-year-old culturally deprived Negroes. In comparing his results with those from a similar study by Menyuk of white middle-class children in Boston, he found substantial differences in the range of syntactic structures available to each group. Even when the functional equivalence of words in different sequence in the Negro dialect was recognized, the white middle-class children showed greater syntactic development. However, within the Negro group itself, there was considerable variation in the number of syntactic structures used.[2] Commenting upon his findings, Osser (1966, p. 5) noted:

> One could, of course, argue that even if large differences were observed between or within groups of young children, in the long run, i.e., at 15 years, 18 years, 21 years, etc., everyone is likely to be linguistically equal. This may be true, although I am dubious about that, but if language is at all implicated in thinking behavior, then it is quite possible that any degree of maturity in language development in early childhood could be significant in the child's general cognitive development.

Differences in syntactic structure, vocabulary, and phonology were taken into consideration in a study by Weener (1969) in which he tested middle-social-class white (MSC) and lower-social-class Negro (LSC) first-grade children on an immediate recall task. The stimuli were word lists obtained from MSC and LSC adult subjects and recorded by speakers from both groups. The lists varied in the degree to which item order

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[2] Osser in a personal communication has since indicated that the findings in his 1966 paper may well have been due to an insufficient sample of situations for the acquisition of utterances.

approximated probable word order in sentence constructions in the two dialects. Each of the 48 subjects received 24 lists representing three levels of syntactic continuity, the two vocabulary sources, and the speech distinctions of the two socioeconomic levels. It was found that the performance of the two groups was not affected by the syntactic or semantic aspects of the material to be recalled. However, differences in speakers did produce differences in performance. The MSC children had significantly higher scores on the MSC presented lists than on the LSC presented lists. For the LSC children there was no significant difference; their mean score on the MSC presented lists was, in fact, somewhat higher than on the LSC presented lists. Overall, the scores of the two groups were approximately the same. Analysis of the tape recorded responses showed that LSC subjects exhibited the phonetic distinctions of their dialect in the recall of the MSC presented lists. According to Weener (1969, p. 199), this study indicated that:

> ...the child who is regularly exposed to two dialects, ... may develop bidialectical comprehension skills but speak (produce) only one of the two dialects.

The sharply reduced performance of the MSC children on the three LSC presented lists was, in turn, attributed to their lack of exposure to the LSC dialect.

Another study which, like Weener's, attempted to determine the effects of language differences on communication was done by Piesach (1965). Her subjects were 69 first graders and 127 fifth graders with nearly equal numbers of Negroes and whites in two socioeconomic levels as determined by partental occupation and education. The Cloze technique (see p. 11) was employed with samples of teacher speech with the last word in every sentence deleted for the first graders, and with samples of teacher and

peer speech with every fifth word deleted for the fifth graders. The peer speech samples represented varying combinations of sex, race, and socioeconomic status. Half of the fifth-grade pupils received an auditory presentation of the material, half a written presentation. Three scores were given where possible: (1) an absolute score requiring the exact word or a variation of the word deleted, (2) a contextual score for a word maintaining the meaning of the material; and (3) a grammatical score for insertion of the same part of speech but with a different meaning. The results were analyzed by socioeconomic status, race, and sex.

On the comprehension of teacher speech, there was an increase in differences by socioeconomic status between first and fifth grade. At first grade, the upper socioeconomic group was higher only on the contextual score; at fifth grade, it was higher on all three scores. The only significant difference by race was in favor of fifth-grade whites on the absolute score. This was due to the low performance of the upper socioeconomic Negroes; in the lower SES group, the mean score of the Negroes was above the whites.

On peer speech in the fifth grade, the difference in favor of the upper socioeconomic group was also consistent across all three scores. There were no Negro-white differences that cut across socioeconomic levels. Differences were found when results were analyzed in terms of the source of the peer speech. The lower-class children did as well as the upper group on lower-class and Negro speech but were significantly poorer on white speech and middle-class speech. Similarly, Negro and white groups were approximately equal in handling Negro speech samples, but the white children were superior on white peer speech and upper socioeconomic peer speech.

The results of these studies do not give a unified picture of linguistic differences and their consequences. What in some cases appear to be contradictory findings, as in the Weener and Piesach studies, may be the result of different evaluation techniques. The studies are limited in several instances by the practice of contrasting lower-class Negroes with middle-class whites. This has a tendency to focus attention unduly on racial differences rather than socioeconomic differences. The Piesach study has the advantage of white and Negro representation at both socio-economic levels. Replication of some of the imitation tasks with such mixed samples would appear to be worth while.

While much remains to be done to explicate the relationship between patterns of language use and cognition, it is readily apparent that certain aspects of subcultural dialects may cause problems in learning to read. In a provocative paper, Labov (1967) noted that a number of homonyms found in the speech of Harlem Negroes are not homonyms in standard English. As a consequence, the child using this dialect may not sense important differences between words which facilitate learning to read. An example would be the omission in speech of the /ed/ verb ending, not because of a lack of understanding of past tense, but because of pronounciation pattern alone. The general point is that speech is the basis for reading. If the discrepancies between speech and written language are the same for the teacher and the child, the teacher will be able to anticipate and point out problems, e.g., the differences between /there/ and /their/. For the middle-class teacher, there are auditory differences between /pass/ and /passed/. For the Harlem Negro child, there are no such differences.

Labov (1967b) makes specific recommendations on teaching the Negro

child to read. First, in the analysis and correction of oral reading, the teacher must make the basic distinction between difficulties of pronunciation and mistakes in reading. Secondly, in the early stages of teaching reading and spelling, it may be necessary to spend more time on the grammatical function of certain inflections, e.g., verb endings, which have no apparent function in the dialect of some of the children. Thirdly, a certain amount of attention should be given to perceptual training to hear and make standard English distinctions. (It should be pointed out that the child does not need to be taught to hear; he may need to be taught that certain parts of what he does hear can be important for meaning.) Labov is suggesting ways to train teachers to fit with the children rather than suggesting that the patterns of the child's language use be changed.

Most of the investigators cited above would either not support teaching disadvantaged children the standard dialect or would delay such teaching until the upper elementary grades. Loban (1965, p. 225) advocated the latter position when he stated that "in the kindergarten and the earliest years of school, the emphasis should be upon the child's using whatever dialect of the language he already speaks as the means of thinking, and exploring and imagining." These investigators would argue, and the present authors concur, that teaching the standard dialect below fourth grade will not aid understanding or achievement but may deprecate the child's own subculture.

Another group of investigators believes that standard English should be taught as a second language (Putnam and O'Hern, 1955; Pederson, 1964). Their case rests on the assumption that speech serves as a mark of social class and that a child's deviation from standard English tends to give

him second-class status. The present authors take exception to this on two counts. First, it may be more reasonable to assume that language use is one of the more obvious manifestations of available social role and thus, cognitively speaking, is relatively superficial. Second, in our society there are many subcultures with distinctive language use patterns, whose members could in no way be considered second-class citizens. The seemingly excessive concern with dialect differences of the "second language" advocates may result from the use of the immigrant analogy to describe the status of culturally disadvantaged groups. The present authors feel that the analogy does not apply and that in any event the procedures advocated by some members of this group (e.g., pattern practice drill at very young ages) are inappropriate.

Cognitive Differences

Dialect differences have yet to be directly associated with cognitive deficiencies. This leads one to suggest that it might be more fruitful to look for other language differences which may be responsible for cognitive decrements, either real or apparent. A "real" decrement is demonstrable across a wide range of environments; an "apparent" decrement is susceptible to immediate situational demands, such as low teacher expectancy. An apparent deficiency may have great implications for poor educational performance.

There is ample evidence to show that socioeconomic class and/or race are related to academic achievement and performance on general intelligence tests (Jensen, 1969; Kennedy, 1969). It is quite tempting to speculate that the problem of low IQ is related to language ability or language use (Bereiter, 1965) since instruments such as the Stanford-Binet are "verbal" instruments. As noted earlier, however, specifying what is meant

by "verbal" ability is a very difficult task. This difficulty is exaggerated by the contrast between speech production and speech comprehension. Comprehension can and does occur in the absence, or partial lack, of production. Production, however, cannot occur without comprehension (at least if what is produced is to make sense to the listener). If one views production and comprehension as different aspects of the same underlying system, what is produced gives only a lower limit for comprehension ability. This position is consistent with data gathered by Pasamanick and Knoblock (1955) in a study of 40 Negro infants. When these 2-year-olds were tested by a white examiner using the Gesell Developmental Scale, their comprehension scores were significantly higher than their verbal responsiveness scores. Carson and Rabin (1960) had similar findings with groups of northern-born white, northern-born Negro, and southern-born Negro children in the fourth, fifth, and sixth grades (30 in each group). Subjects were matched on age, sex, grade placement, and verbal comprehension scores on the Full Range Picture Vocabulary Test. The white children scored significantly higher on the vocabulary portion of the Weschler Intelligence Scale for Children (WISC) and in giving oral definitions for the Full Range Picture Vocabulary cards; southern-born Negroes scored lowest on the same communication tasks.

Earlier in this review, differences between subcultural groups that are considered culturally disadvantaged were emphasized. Lesser, Fifer, and Clark (1965) have provided important information concerning cognitive differences within as well as between subcultural groups. Their subjects were 320 first-graders from Chinese, Jewish, Negro, and Puerto Rican backgrounds. In each cultural-ethnic group, there were both middle- and lower-class children. The areas assessed were perception, verbal ability,

reasoning, and number skills.

The results were consistent with the usual findings for different socioeconomic groups: The performance of the middle-class children significantly exceeded that of the lower-class children on all tests. The more important finding, however, was that within each ethnic group lower- and middle-class children had the same general performance patterns across abilities. To elaborate, plotting the mean test scores of the two socioeconomic groups in each subculture produced ability profiles that were similar within ethnic groups but distinctive across groups. In each case, the middle-class children outperformed the lower-class children. In reporting these results, the authors (Lesser et al., 1965, p. 84) commented that:

> It seems true that social class and ethnic groups do "differ in their relative standing on different functions." However, ethnic groups do "foster the development of a different pattern of abilities," while social-class differences do not modify these basic organizations associated with ethnic-group conditions.

It is interesting to note that the Negro sample in the Lesser et al. study performed better on the verbal (vocabulary) subtest than on any other and was second only to the Jewish sample on verbal performance. The latter is difficult to interpret since many of the Chinese and Puerto Rican children were bilingual. Other research has indicated that under certain circumstances, bilingualism can have adverse effects on proficiency in both languages spoken (Anastasi, 1960). While every effort was made to take differences between languages into account in the development of the vocabulary test for this study and while the examiners spoke the native tongues of the subjects tested, one can not be sure that confounding by bilingualism was eliminated. The vocabulary results may not be sound indicators of basic cognitive differences between the groups.

Of the four groups, the Chinese and Jewish samples scored highest on the reasoning subtest which consisted of picture arrangements and picture analogies. Such tasks involve symbol manipulation and thus may be considered language assessment techniques by those who hold that language ability involves something more or different than vocabulary. This is the view of Ryckman (1965) who found that a general language factor, independent of vocabulary, differentiated middle- and lower-class Negro boys. Evidence of the independence of vocabulary and "reasoning" has also been provided by Wellman and McCandless (1946). Lesser et al. (1965, p. 84) concluded their monograph by suggesting the relevance of their strategy for intervention programs and intervention research:

> We propose that the identification of relative intellectual strengths and weaknesses of members of different cultural groups must now become a vital prerequisite to making enlightened decisions about education in urban areas.

Unfortunately, these admonitions are difficult to implement and have typically not been attempted by those concerned with intervention.

To summarize, these are the major findings of investigations on subcultural differences in language: First, the data on dialect differences do not indicate that dialect per se is deficient or contributes directly to deficiencies of comprehension or production. Second, lower-class children score lower than middle-class children on standardized tests which have been labeled "language ability" tests. Such tests refer not to vocabulary, but to the ability to reason, to cope with spatial relationships, and to manipulate symbols. Some investigations (e.g., Jensen, 1969) view this lower performance as reflecting a deficiency in general intelligence. Finally, there is evidence for different ability patterns as a function of ethnic group alone.

Theoretical Views

Theoretical positions regarding the role of language in cognitive performance vary greatly. Piaget, for example, is explicit in playing down the importance of language as opposed to reasoning. Sinclair-de-Zwart (1969, p. 320) summarizes the Piagetian position as follows:

> ...Piaget considers language not to be a sufficient condition for the constitution of intellectual operation, and he has said so, explicitly, in several articles. As to the question of whether language (in the sense of normal acquisition of natural language by the young child) is, if not a sufficient, all the same a necessary condition for the constitution of operations, Piaget leaves the question open as regards the operations of formal logic. He notes, however, that these operations go beyond language, in the sense that neither the lattice of possible combinations nor the group of four transformations is as such present in language; they cannot even be expressed in ordinary, natural language. As regards concrete operations, Piaget considers language (again, in the limited sense) not even a necessary condition for their constitution, though he has not explicitly said so.

The Piagetian perspective implies (although there is considerable disagreement) that other forms of intervention would be preferred to language intervention. Kohlberg (1968) and Sullivan (1967) emphasize that language intervention may be an inferior procedure. Kohlberg (1968, p. 1056) states:

> ...cognitive-developmental theorists like Piaget and Vygotsky are in broad agreement as to the parallel and interdependent nature of the development of thought and speech. This parallelism of language and thought is most grossly reflected in the high correlations between measures of verbal development or knowledge and cognitive measures (like the Raven Matrices) which do not obviously depend upon verbal development. These correlations need not be interpreted as indicating that language development is the causal foundation of cognitive development, however. A more plausible interpretation is that the more basic cognitive abilities contributing to nonverbal tasks also contribute to language achievement (and, to some extent, vice versa).

The preceding view deviates, of course, from that of the more empirically minded psychologists interested in "learning." Probably the

best example of this second group is the behavior modification psychologist operating from a Skinnerian base. For this interventionist, language behavior is the same as any other behavior, and, as soon as someone defines the criterion task, reinforcement techniques can be instituted to produce the proper behavior. Although reinforcement has proved an effective strategy in many areas, as yet no language curriculum to improve abstract reasoning has emerged from reinforcement theorists.

The theoretician who has had the greatest influence on language intervention programs is the British sociologist, Basil Bernstein (1958, 1959, 1960, 1961, 1962a, 1962b, 1964, 1965, 1968). As a sociologist, Bernstein is concerned with social structures, social roles, and social relationships. He views language use as the prime means by which these are manifested and transmitted across generations. Furthermore, he believes that it is through listening and speaking that the individual establishes his personal identity and acquires various social roles. Finally, and fundamentally, he regards social relations as the determiner of linguistic behavior.

In analyzing linguistic behavior, Bernstein uses the term "code" to describe the principles or verbal planning activities associated with various social roles and relationships. These codes, which are generated by the social relationships, regulate what is said, when it is said, and how it is said. Bernstein distinguishes two major types of codes--restricted and elaborated--which vary in both syntactical and lexical predictability.

Restricted codes are highly predictable. They are grammatically simple, follow set patterns, have limited vocabularies, and rely considerably on extra-verbal communication. In restricted code use, meaning

is implicit and is heavily dependent on the immediate social context. The give and take of a construction crew at work, the game-table talk of poker players, and the lingo of the baseball team are all examples of restricted code use. The major function of a restricted code is to define and reinforce the form of a social relationship. It does so by restricting the verbal signaling of individual differences and experience.

Elaborated codes are highly unpredictable with complex syntactic organization and a high degree of lexical selectivity. The major function of an elaborated code is the formulation and communication of relatively explicit meaning and the symbolization of intent. Elaborated codes are said to arise in social relationships where intent can not be taken for granted and where it is necessary to manipulate linguistic resources to clarify specific referents. A very simple example of elaborated code use is the giving of directions to an out-of-town driver. A more sophisticated example is a critical essay in a literary journal. Elaborated codes, in Bernstein's view, foster sensitivity to differences and their implications, and reveal the possibilities for organizing experience in complex conceptual hierarchies.

Elaborated and restricted are generic terms which may be used to describe many different codes. They may be regarded as the bounds of a continuum,for codes vary in the degree to which they are elaborated or restricted. Moreover, an individual speaker, by virtue of the various roles which he assumes and the different social contexts in which he finds himself, may exercise a number of different codes, some elaborated and some restricted.

Bernstein asserts that all persons have the capacity for elaborated and restricted code use, but that in practice, elaborated codes are most

likely to be found among those whose social position gives them access to appropriate social models or, more specifically, to those in the decision-making classes of society. In short, code use is associated to a large degree with social class status. Restricted code use typifies the lower or working class, while both elaborated and restricted codes are found in the middle and upper classes.

Bernstein has applied his theory of linguistic codes to an analysis of the educational problems of lower-class children. He contends that both the language and the purpose of the school are such that school progress requires possession of, or an orientation to, an elaborated code. For the middle-class child already exposed to elaborated code use, school is part of an ongoing developmental experience. For the lower-class child limited to a restricted code, it is a symbolic and social change for which he is not prepared and with which he often cannot cope.

American educators and psychologists have seized upon Bernstein's analysis to explain why so many disadvantaged children fail in school and have made it a basis for various intervention procedures. However, problems arise when one tries to operationalize Bernstein's analysis in a specific program or when one pauses to consider some of the assumptions made.

One problem is that of attempting to <u>teach</u> an elaborated code. If, as Bernstein hypothesizes, linguistic codes are generated out of pervasive social structures or patterns of interaction, then imposing a new code through direct instruction is extremely difficult if not impossible. Furthermore, if the child's usual speech code is a symbol of his social identity, sudden efforts to alter that code may be a threatening and harmful experience.

Another, and more fundamental problem, concerns the applicability of Bernstein's analysis to the American scene. British middle- and working-class populations have a fundamental cultural similarity not paralleled in the United States, where there is a pluralistic society. Here racial and ethnic differences confound socioeconomic differences. While Bernstein has provided interesting insights into language differences within a given culture, the applicability of his views to differences between subcultures is questionable.

METHODOLOGICAL CONSIDERATIONS OF INTERVENTION RESEARCH

Careful intervention research is extremely difficult to carry out. It is of primary importance, however, that every effort be made to conduct the best research possible any time that intervention is attempted. Without careful evaluation, there will be no real basis on which to make intelligent judgments concerning effectiveness, short or long term, of any intervention program. Inadequate evaluation research may be worse than none at all since any or all conclusions may be erroneous and lead to a compounding of errors. Excellent discussions of specific research designs which are applicable to intervention research are to be found in Campbell and Stanley (1963) and Campbell (1969). The latter reference is particularly helpful in evaluating intervention when the consequences are seen to serve some social good.

Probably the most important problem in any manipulative research is the selection and use of relevant control groups. As the reader is aware, this is more than a feature of experimental design. Without the proper control groups, one cannot determine the effects of the intervention treatment and/or cannot specify how the treatment was effective.

Campbell and Stanley (1963) discuss designs which do not require control groups, but these are to be used only when appropriate controls are not possible.

The most appropriate control group is composed of a random sample from the same population as the experimental group. Since it is rarely possible to satisfy this ideal requirement, one must usually be satisfied with groups from the same general population as the experimental group. Once a control group has been selected, the question becomes, "To what will these subjects be exposed while the experimental subjects are going through the intervention treatment?" This may range from nothing, i.e., not treated in any systematic way by those concerned with the intervention, to a different but presumably inferior treatment. In the latter case, the "control" group is another experimental group. The control groups used most frequently in intervention research are matched with the experimentals on variables such as IQ, socioeconomic status, race, and sex and then receive a different treatment or no experimenter-constructed treatment. In both cases, misinterpretations are frequent since there may be sample differences and/or unknown treatment effects. Replicating studies with different sets of controls is a strategic way of reducing the likelihood of alternative explanations. At the very least, the circumstances under which the control group is selected must be made explicit.

A second common problem concerns specification of the treatment so that a study can be replicated with a different group. Too often only general descriptions are given and specific lesson plans are unavailable. In addition to specifying the treatment, it is important to monitor its implementation. Few studies report that this is done. Instructing teachers how to teach or prescribing lesson plans does not guarantee any-

thing about their behavior in the classroom. Even in a carefully planned program like Bereiter's, actual observation can lead to the discovery of important variables not included in a program description. For example, one of the present authors was impressed by a teacher in the Bereiter project who kept challenging the students with the statement, "I'll bet you can't do this!" Although never reported, this statement seemed to serve as an important motivator for these children. This suggests the desirability of looking at pupil reactions in the experimental situation, a matter which seems to be virtually overlooked. The authors know of no intervention study in which the behavior of the students has been monitored or described. Even though a new interest in attention has appeared in psychological literature, experimenters seem to assume that in all treatments the children are paying close attention. Anyone who has taught for long periods of time knows that there is wide variation in attending behavior within and between children and classes. When only one or two teachers are involved in an intervention research, one can not be sure whether it is the treatment or the teachers' ability to elicit attending behavior that determines results.

A third matter to be considered is the procedure for assigning particular teachers to specific treatments when more than one treatment is used. Some would argue that teachers should be randomly assigned to treatments or that each teacher should employ every treatment. Others point out that a treatment should have the benefit of an enthusiastic teacher. The decision might be influenced by the demands of the treatment and the situation. If the behavior of the teacher is clearly specified and monitored then there is less chance that a particular teacher's bias will interfere, or, if it does interfere, that it will remain un-

known or unspecified. In essence, there is no "right way," but how teachers are assigned should be reported.

A fourth consideration for intervention research is the length of follow-up. In general, the longer the followup the better the study. A common finding so far is that initial intervention effects begin to disappear rather rapidly after 1 or 2 years.

Still another problem is how tests shall be used in intervention research. Evidence gathered so far indicates that certain deviations from the standard pretest-posttest design are advisable. For instance, it has typically been reported that pupil gains during intervention are largely confined to the early part of a program. Some experimenters have begun collecting the pretest data very early so later gains will be inflated. Unfortunately, as has already been noted, such factors as fear of examiner or examiner bias become extremely important when dealing with young children. The administration of tests at several points during the intervention would help to isolate such effects and at the same time identify weaknesses in the program. Although the limitations of standardized general intelligence tests have been discussed, this does not imply that they should not be used. However, the evaluation of test results should be more detailed than is usually the case. For instance, to the authors' knowledge no intervention research has determined what kinds of items on a general intelligence test contribute to IQ change. Such information would be of great value by pinpointing program outcomes.

It is generally recognized that intervention research is time-consuming and expensive. One factor which drives costs up is the use of extra support personnel such as teachers, aides, and observers. Such additional expenses must be justified by adequate evaluation. For

example, the teacher/pupil ratio of one to five found in most intervention programs is much smaller than that in conventional classrooms. One must determine whether or not that ratio per se is of educational import before he attempts to translate intervention results into school policy and practice. If the low teacher/pupil ratio is crucial, it will have an important effect on planning at all levels.

SELECTIVE REVIEW OF LANGUAGE INTERVENTION RESEARCH

This section summarizes some studies of language intervention programs. Short term studies are given only limited coverage because little generalization can be obtained from them. Also omitted are studies of intervention programs which do not have large or specified language components. These include Montessori schools which represent the application of a particular theoretical framework for intervention but have little or no explicit emphasis on language.[6]

Project Head Start

Any discussion of intervention must recognize the scope of Project Head Start and its efforts to prepare young disadvantaged children for school. Head Start, initiated in 1965 by the Office of Economic Opportunity, is one of the largest intervention programs ever undertaken.

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[6]The implications of a well-developed Montesorri program for the acquisition of symbol manipulation skills may be very great. The authors do not mean to slight this possibility, but a thorough discussion of the question is beyond the scope of this paper. One would hope that in the near future some author would write a theoretical position paper concerned exclusively with Montessori, giving particular emphasis to the cognitive implications for the culturally disadvantaged exposed to this kind of educational environment.

However, because the implementation of Head Start varies so widely, it is impossible to make any generalization about its language component. Moreover, broad scale evaluations of Head Start do not give much attention to the effects of the program on language development *per se*. The 1968 survey of the Institute for Educational Development which used information gathered by Head Start staff members did not, for example, include any specific language measures. The 1969 study of the *Impact of Head Start* by the Westinghouse Learning Corporation and Ohio University which was a followup assessment did include the Illinois Test of Psycholinguistic Abilities (ITPA) in its battery of cognitive tests.

In the Westinghouse study with nearly 4,000 subjects, first, second, and third graders who had been in either full-year or summer Head Start programs were matched with controls on sex, race, kindergarten attendance, and eligibility to attend Head Start. Socioeconomic data collected in parent interviews were then used to equate the Head Start and control children in covariance analyses of test results. The analyses were made for 75 summer and 29 full-year programs and for the two types of programs subdivided by geographic location, by community size, and by ethnic composition.

In neither major program group (summer or full-year) were the total scores of Head Start children in any of the three grade levels significantly higher than those of their controls. Similarly, there were no significant total score differences favoring Head Start children in any of the summer program subgroups. However, there were significant differences in favor of second-grade children who had been in full-year Head Start programs in the southeast and west. (There were too few centers for subgroup analyses at the third grade level.) It was on the basis of such

findings that the authors of the Westinghouse Report recommended the phasing out of summer Head Start programs and the continuation of full-year programs with a concentrated effort to make them more effective (Westinghouse, 1969).

Bereiter-Engelmann Program

Probably the best known language-based intervention program is that of Bereiter and Engelmann (1966). Their major premise is that by the time disadvantaged children reach four, they are already behind their middle-class peers and therefore must concentrate on important cognitive abilities and learn at a rapid rate if they are ever to catch up and succeed in school. The program has been worked out in great detail and prescribes drills for the pupils, teacher behavior, classroom management, and so forth. The curriculum is based on the notion that language deficits must be identified and then rectified.

Although Bereiter and Engelmann offer their program for the culturally disadvantaged in general, language deficiencies were defined by working with a rather limited number of children in Urbana, Illinois. A diagnostic test developed by Engelmann (1967) was used to measure individual defects rather than to compare individuals with a standardization group. The criterion tasks were selected by defining the kinds of language the child will meet in school. The emphasis is on preparing the child for school, with no provision for the school accommodating itself to the language of the child. When speaking of the Bereiter and Engelmann program, Osborn (1968, p. 38) one of the teachers, states:

> Whether these language characteristics [of the disadvantaged] represent a language that is a valid but different language from standard English or whether they represent a sub-standard English dialect, incapable of being used for serious cognition, need not be argued here. What is evident is that

such characteristics are not those of the language used in the public schools.

The most striking attribute of the Bereiter program is not the content but the teaching strategy. The children are not only encouraged but required to "chant" their replies to the teacher. It is this chanting which most observers react to in either a positive or negative manner. It is curious that Bereiter and Engelmann never consider that this kind of behavior may well turn out to be maladaptive in the school environment. The present authors feel, however, that the chanting may have the important effect mentioned earlier of requiring the children to pay close attention. The possible effects of the chanting procedure on production must also be considered. Of interest here are the results of a study by Gupta and Stern (1969) who found that requiring children to echo and produce sentences was more effective in developing facility in sentence production than was just having them listen to sentences. Their subjects were disadvantaged Negro children 43 to 55 months old. Chanting in the Bereiter and Engelmann program may be maximizing production facility by maximizing attention. Hence, we might view the Bereiter "language" intervention procedure as an attention training program.

Osborn (1968) reported test results for three groups of children who participated in the Bereiter-Engelmann program at the University of Illinois.[7] The first and second groups were in the program for 2 years--preschool and kindergarten; the third had completed only the preschool year when the research data were compiled. Group I (n = 13) gained 10 points on the Stanford-Binet over the 2 years (97.2 to 106.9) while

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[7] The test scores cited here were obtained in a personal conversation with Siegfried Engelmann on February 24, 1970 because of conflicts between tabular and textual data in the Osborn article.

Group II (n = 12) gained 24 points (97.2 to 121.1). Group III (n = 12), in 1 year, gained 12 points (92.3-104.1). In comparing the three groups, it must be considered that Group I was initially tested after being in school 3 months while the other groups were tested before entering school. The Group I scores therefore do not reflect the substantial IQ gain usually made in the first 2 or 3 months of an intervention program. When tested at the end of kindergarten with the Wide Range Achievement Test, Groups I and II had the following mean grade-equivalent scores.

	Reading	Arithmetic	Spelling
Group I	1.48	2.61	1.74
Group II	2.60	2.51	1.86

At the end of its preschool year, Group III had grade equivalent scores of 1.25 in reading and 1.07 in arithmetic. The Osborn report did not include pretest scores on Engelmann's diagnostic Basic Concept Inventory Test nor did it indicate that the instrument had been used for posttesting, which would have been desirable.

Karnes Program Comparisons

Some of the Bereiter-Engelmann subjects cited in the Osborn report were part of a large-scale longitudinal study conducted by Karnes (1969) at the University of Illinois to evaluate the effects of different types of preschool programs for the disadvantaged. The first 2 years of this study compared children in five programs ranging on a theoretical continuum from highly directive to nondirective. The most directive, or structured, were the Bereiter-Engelmann program, designated as "Direct Verbal," and a program for the Amelioration of Learning Deficits. In the Ameliorative program, manipulative and multisensory materials were used to

stimulate needed language development. A game format facilitated the repetition of verbal responses in a productive meaningful context without resorting to rote repetition. The tasks and concepts pursued for the Ameliorative program were those considered necessary for successful academic performance in the elementary schools. The other three programs in the Karnes study were: a Montessori program; a Traditional nursery school for disadvantaged children; and a Community-Integrated program in which lower-class children attended middle- and upper-class traditional nursery schools with two to four disadvantaged children in each class. The promotion of social, motor, and general language development was the major goal of the traditional programs, which relied on opportunities for incidental and informal learning.

The Stanford-Binet, the Illinois Test of Psycholinguistic Abilities, and the Peabody Picture Vocabulary Test were among the tests used in evaluating the five programs.

At the end of the preschool year, the two most direct treatment groups showed the greatest gains on the Stanford-Binet. The mean intelligence scores of the Direct Verbal and Ameliorative groups were significantly higher than the Community-Integrated and Montessori groups, but not the Traditional group. On the ITPA, the Ameliorative group showed the greatest gains on the three subtests on which all subjects had exhibited their greatest initial deficiencies (Vocal Encoding, Auditory-Vocal Automatic, and Auditory-Vocal Association). The pattern of significant differences was the same on these subtests as on the Stanford-Binet. There were no significant differences among the groups on the PPVT.

During the second year of the study, the three nondirective groups went to regular kindergarten. The Ameliorative group went to kindergarten

but also had 1 hour of supportive instruction in the language arts and arithmetic in the afternoon. The Bereiter-Engelmann group continued its special program, although three of the children also attended the public kindergarten. The Bereiter-Engelmann group gained 10 more IQ points in the kindergarten year while the other groups showed slight IQ losses. The Direct Verbal group was significantly different from all other groups on the Stanford-Binet. It was also significantly different on the ITPA; the mean language age of the Direct Verbal group exceeded its chronological age, while those of the other groups were below their chronological ages.

Three of the groups--Ameliorative, Direct Verbal, and Traditional--were followed into first grade when they all attended the regular public school program. At the end of first grade, there were no significant differences among these three on the Stanford-Binet, the ITPA, or the PPVT. By then, the Bereiter-Engelmann (Direct Verbal) IQ mean had dropped back from its high of 120 to 110. On the ITPA, the Bereiter-Engelmann group was performing at age level while the other two groups had deficits of 5 or 6 months. The failure of the Direct Verbal group to maintain the advantages gained by the end of kindergarten led Karnes to observe that the language prognosis was not encouraging.

The results of achievement testing at the end of grade one were somewhat different. The Direct Verbal and Ameliorative groups had significantly higher mean scores than the Traditional group on both the reading and arithmetic sections of the California Achievement Tests. The Ameliorative group was also significantly higher than the Traditional group on the language subtest; the Direct Verbal group mean was higher but not significantly so. (The language subtest covers spelling, capitalization, punctuation, and similar mechanics--aspects of language development that

were not a part of the preschool program objectives.)

The means of the Direct Verbal and Ameliorative groups on the reading subtest were nearly half a year above grade level. In commenting upon this superior performance, Karnes noted that the instruction in reading which had been a part of the Direct Verbal program, had been of no greater benefit than had the readiness preparation of the Ameliorative program. While observing contrasts between the two programs, Karnes also pointed out their common elements (1969, p. 153):

> Both the Ameliorative and Direct Verbal Programs gave major emphasis to language development through intensive, highly structured programming. Learning tasks were explicitly designed to achieve immediate goals, and the child's repeated participation in specific verbal responses was required in direct teacher-child interactions.

Using subsequent school achievement as the critical criterion, Karnes reached the conclusion that structured, academically oriented preschools were an appropriate and effective intervention. Questions still remain as to which elements of the programs were the important antecedents of the school performance.

Tutorial Language Program

Another intervention project concerned with cognitive development was designed by Blank and Solomon (1968, 1969) at Yeshiva University. Like Bereiter and Engelmann, these investigators believe that the disadvantaged child is most handicapped by a lack of language skills adequate for abstract thinking. In contrast to Bereiter and Engelmann with their reliance on group activity and pattern drills, Blank and Solomon designed a tutorial approach to language development in which the teacher would interact with an individual child in a Socratic relationship. Verbalization was emphasized even to the point of omitting gesture in communication.

Their program (Blank and Solomon, 1968) was intended to overcome specific deficiencies by developing:

1. Selective attention
2. Categories of exclusion
3. Imagery of future events
4. Separation of the word from its referent
5. Models for cause and effect reasoning
6. Ability to categorize
7. Awareness of possessing language
8. Sustained sequential thinking.

Blank and Solomon tested their tutorial program in a day-care setting with two experimental and two control groups matched as nearly as possible by sex, age, and Stanford-Binet pretest scores. One experimental group (n = 6) was tutored 5 days a week, the other (n = 6) 3 days a week. The first control group (n = 7) remained in the regular nursery program without any special attention. The second control group (n = 3) had daily individual sessions with the same teacher and was exposed to the same materials as the experimental groups. However, these control children were permitted to choose their own activities in the individual sessions and "while the teacher was warm and responsive...to questions and comments she did not initiate or expand any cognitive interchange (Blank and Solomon, 1968, p. 385)."

At the end of the 4-month training period, the first experimental group with daily training showed a mean gain of 14.5 IQ points; the second group with three tutoring periods per week gained 7 points. Control group one, with no individualized attention, had an average increase of 1.3 points. Control group two, with attention but no training, gained 2 points. The gains of the experimental groups were significantly different from those of the untutored control groups. In addition to their IQ gains, the tutored children showed marked changes in behavior and exhibited pleasure and pride in learning.

With the results from the four groups, Blank and Solomon had a basis for commenting on the efficacy of individual attention alone in improving intellectual performance. They stated (1969, p. 60):

> A relationship with an involved and warm adult has often been suggested as the missing link to learning. We submit that such a relationship is fruitless from a cognitive view unless the time is structured and directed toward a language for cognition.

From the point of view of research techniques, the Blank and Solomon study is noteworthy because of its inclusion of the two control groups and its attempt to differentiate between individual attention and a teaching strategy. It is also noteworthy in its publication of transcripts of tutorial sessions demonstrating this teaching strategy and that of a visiting teacher unfamiliar with the program objectives and procedures.

Perry Preschool Program

Another language intervention effort is the Perry Preschool Program developed by Weikart (1967, 1969) in Ypsilanti, Michigan. This program was begun in 1962 and data have been gathered each succeeding year. The original population consisted of Negro 4-year-old children from lower-class homes, designated by an examining psychologist as educably mentally retarded, with no major organic involvement. The experimental and control groups in Weikart's studies are matched on the selection criteria of cultural deprivation and mental retardation. A cultural deprivation rating is calculated on the basis of the father's occupation, years of education of parents, and number of persons living in the home. Sex ratio and percentage of working mothers are also balanced when possible.

Several different curricula have been tried by Weikart over the years including "verbal bombardment," a Piagetian regimen, and a Bereiter program. Verbal bombardment, the procedure originally developed by Weikart,

is described as follows (1967, p. 5):

> ...the teacher maintains a steady stream of questions and comments to draw the child's attention to aspects of his environment. This "bombardment" does not necessarily demand answers on the part of the children. It is used when rewarding a child for good performance, when disciplining him, and when presenting academic material. The complexity of the language is increased as the child's verbal ability develops. An observer in preschool might receive the impression that the teacher is acting like a middle-class mother interacting with her young children.

Another aspect of the program is home visitation. Weekly visits provide the parents with personal contacts with the child's teacher and give the teacher a chance to encourage the parents to help educate the child.

Children in the Perry Preschool Program have shown the same dramatic increases in IQ as have children in other intervention programs--and the same IQ losses over time. For instance, the first group of participants (n - 13) gained 13 IQ points and was significantly different from its control group (n = 15) at the end of preschool. By the end of second grade, through a combination of losses for the experimentals and gains for the controls, the groups were almost identical in mean IQ. However, on all but one subsection of the California Achievement Tests given at the end of grades one and two, the mean percentile ranks of the experimentals were significantly higher than those of the controls (the exception was the grade two language subtest). This startling finding was the basis for Weikart's (1967, p. 7) suggestion that:

> ...preschool experiences for children from disadvantaged homes will not greatly change the measured intellectual level, but may provide the foundation necessary to produce improved academic achievement.

In 1969 Weikart reported the results of a new experiment which has greatly influenced his thinking. He divided two experimental groups (3- and 4-year-olds) into six treatment groups. Two groups (n's of eight

each) received verbal bombardment, two groups (n's of eight) received the Bereiter language program, and two groups (n's of eight and four) received a Piagetian program. Weikart found that while the mean posttest performance of all experimental groups differed significantly from the two control groups (n's of 14) on the Stanford-Binet, the Leiter International Performance Scale, and the PPVT, none of the experimental groups differed from each other. Of particular interest were the large gain scores on various tests, e.g., mean Stanford-Binet gains ranged from 17 to 30 points. Unfortunately, Weikart did not include instruments that would measure unique aspects of each program.

Weikart (1969, p. 14) summarized his reactions to these outcomes by saying:

> For preschool operation these findings mean that a staff is free to develop or employ any active curriculum that is believed to match the needs of the children so long as that curriculum provides an adequate vehicle for staff expression and program operation. The arguments about the relative effectiveness of various approaches to preschool education are irrelevant. Then, too, waiting for the curriculum for disadvantaged children to be developed so that early education programs can be effective is pointless. The process of creating and the creative application of a curriculum, not the particular curriculum selected or developed, is what is essential to success.

Gahagan and Gahagan Elaborated Language Program

Gahagan and Gahagan (1968) have reported a language intervention program based on Bernstein's code analyses (see pp. 31-35). This was a 2-year project requiring 20 minutes per day. "The aim of the language program was to extend children's use of syntax and vocabulary by setting up those situations in the classroom which Bernstein's theory has suggested are associated with an elaborated code (p.1121)." The intervention involved four kinds of situations: (1) situations requiring explanation, (2) situations requiring fine distinction and qualification and

description, (3) situations requiring hypotheses, and (4) situations requiring verbalization of feeling and intent.

The experimental group included nine boys and nine girls divided into three subgroups (high, medium, and low) on the basis of pretest scores on the English Picture Vocabulary Test (EPVT). At the time of posttesting, the ages of the subjects ranged from 6 years 9 months to 7 years 3 months. There were two control groups of equal size matched with the experimental group on sex and EPVT pretest scores. The first control group received an unrelated intervention program; the second control group received no intervention other than going to school.

The unique part of the study was the evaluation procedure. Rather than looking at standardized test scores, the experimenters took a measure of language redundancy. They predicted that the experimental group would generate a larger variety of verbs than the control groups when required to make up sentences with nouns supplied by the experimenter. In addition, generalizing from a series of studies done by Jensen and Rohwer (1963, 1965) and Rohwer (1964), they predicted that children who generated a wider variety of verbs would take fewer trials to reach criterion on a paired-associate learning task. Results confirmed both hypotheses. The experimental group generated significantly more verbs than did the two control groups which were not significantly different from each other. The major source of this difference was the superiority of the experimentals with low EPVT scores over their control counterparts. That is, the major effects of training occurred with the subjects who had the lowest vocabulary scores. The results from the paired-associate task were somewhat similar. The experimental group was significantly faster in reaching criterion than the two control groups. Again the low scorers on the EPVT

were the ones most affected. For the 54 subjects in the three treatment groups combined there was a significant negative rank correlation between trials to criterion and the number of different verbs produced. This relationship was not significant within either the experimental group or the second control group which had no intervention. Although some may argue about the relevance of this particular training program for an American sample, the study may well serve as a model in that evaluation was related to the goals of the project.

Early Training Project for Disadvantaged Children

Another intervention program which has received wide attention is the Early Training Project for Disadvantaged Children in Nashville, Tennessee (Klaus and Gray, 1968). This program, planned in 1959, was one of the earliest large-scale projects in compensatory education.

The intervention between 1962 and 1965 provides the data reported in formal print thus far. There were four groups of children in the project: Group T1 made up of 19 children who went to three, 10-week preschool summer sessions and had weekly home visitors work with their families for three winters; Group T2 with 19 children who went to two, 10-week summer sessions and had 2 years of home visits; Group T3 consisting of 18 children who served as a local control group; and Group T4 made up of 24 children located in a city similar to Nashville, 60 miles away, who served as a "distal" control group. All subjects were Negro children from lower-class families.

Klaus and Gray (1968, p. 12) noted that:

> The general program provided the children centered around two broad classes of variables. These two were attitudes relating to achievement of the kind required in school and aptitudes relating to such achievement.

While these objectives were distinctive, the dependent variables turned out to be not unlike those in other projects (Klaus and Gray, 1968, p. 24):

> Although our concern was not primarily with "raising the IQ" the predictive value of intelligence and language tests for school performance caused us to use them as pretesting and interim-testing devices.

The authors have reported that some additional measures were used, e.g., conceptual tempo, self-concept, achievement motivation, etc., although none of these yielded data indicating consistent differences between groups. The reader will note that none of the measures used have any clear relationship with specific instructional goals of the program at Nashville. In interpreting the lack of positive results with the instruments cited above, the Nashville group felt that the measures used were inadequate. The present authors concur with this possibility and wonder why measures with at least higher face validity were not used.

The standard measures used were the Stanford-Binet, Wechsler Intelligence Scale for Children, Illinois Test of Psycholinguistic Abilities, Peabody Picture Vocabulary Test, the Metropolitan Reading Readiness Test, and the Gates Reading Readiness Test. The results yielded by these measures were fairly consistent. The last summer of intervention was in 1964. At that time and since, the rank ordering of the four groups on the intelligence and readiness tests has been T2, T1, T3, and T4. Orthogonal comparisons revealed that T1 and T2 were not significantly different. Similarly, T3 and T4 were not significantly different. T1 combined with T2 compared with T3 combined with T4 did differ significantly. The fact that T3 was consistently better than T4 raises questions since these two control groups were not from the same area.

In 1965 and 1966, at the end of first and second grades, the children were given the Metropolitan and the Stanford Achievement Tests. In 1965, the mean Metropolitan grade equivalency scores of T1 and T2 combined were significantly higher than those of T3 and T4 on three of the four subtests, i.e., Word Knowledge, Word Discrimination, and Reading. However, the mean grade equivalents of T3 on these three subtests were higher than those of either T1 or T2. In 1966, when there were significant differences between T1 and T2 and T3 and T4 on just two subtests (Word Knowledge and Reading) out of five, T3 has higher scores than T1 on all but one subtest. Similar patterns occurred with the Stanford Achievement Test mean grade equivalency scores. This clearly indicates that the crucial differences were between T4 and the other groups.

Klaus and Gray feel that T3's performance, was due to "horizontal diffusion." By diffusion they mean the transmission of information learned in the program by the experimental subjects to the local control subjects and increased concern on the part of the parents of these local controls. The alternative interpretation is that the T3 and T4 subjects came from different populations. Comparisons between T3, the local control group, and the two experimental groups were not made due to insufficient degrees of freedom for the type of analyses the authors chose. Alternative analyses allowing individual comparisons might have been more informative.

The experimental treatment of the Early Training Project is described by Kraus and Gray as a "broad gauged" approach towards intervention. The differences between the program and a more traditional nursery school environment are given as (1) the use of toys for learning, (2) the high ratio of adults to children, and (3) the amount of time

devoted to the use of different kinds of materials and equipment. It is unfortunate that the effects of specific aspects of the program were not evaluated directly. If this had been the case, one could begin to answer questions about the value of these aspects. For instance, what was the impact, if any, of the home visit facet of the program?

Klaus and Gray (1968, p.8) do include a rationale for the language training used in their program:

> An important effect of the life circumstances of the low-income mother upon the child is related to language. The mother will talk little to the child, and, even more importantly, she will not listen to the child. When she talks it is apt to be in a "restricted code," to use Bernstein's term (1961). The child, thus, does not learn to use language effectively.

We would hasten to point out that Klaus and Gray are saying that the children of their sample may not use language effectively in terms of school-defined environmental demands.

As the reader might expect, the Early Training Project emphasized language production rather than comprehension. In the words of Klaus and Gray (1968, p. 17)

> ...our first major problem was a dual one: to bring the child's behavior under verbal control and at the same time to develop in him an understanding that he could use language himself to attain his goals. Many of our early efforts were directed toward getting spoken language from the children.

It should be pointed out that there is very little evidence that the behavior of lower-class children is not under verbal control or that lower-class children do not understand that they can use language to attain self-defined goals. The middle-class adult world may well differ with lower-class goals, but that is another matter. In summary, the Nashville project has collected a large amount of valuable data on lower-class children using various indexes of anticipated change. The observed changes in the early groups have been minimal and difficult to interpret.

The present authors would again suggest that all interventionists consider the possibility that the usual expected changes, e.g., ITPA score and IQ, may not be pertinent.

Other Projects

Other training programs have been instituted with varying degrees of success. These programs, however, involved less effort or do not include enough information to warrant extended discussion in this report. For instance, Stearns (1966) and Alpern (1966) have both reported negative findings. Miniuchin and Biber (1968) present a philosophy for a program but admit that as yet there are no evaluative instruments available to measure the kinds of objectives with which they are concerned. They rule out IQ and achievement in school. Gotkin (1968), who has designed several games to develop language facility, has presented an interesting argument in favor of programmed instruction as a strategy for developing language but has not yet presented any data on results.

Finally, there is an interesting study by Dickie (1968) which used a treatment by subject analysis. In all the studies reported so far, no one has tried to match treatment and subject. Although we may not be far enough along to do this, within and between group analyses are certainly approaches which should be thought about.

Dickie reports that she was unable to effect significant differences between two structured programs (Bereiter and Gotkin) and an unstructured traditional program on the Stanford-Binet, color labeling, and one part of the ITPA. Small, homogeneous groups of high or low language children were formed for the language instruction on the basis of teacher ratings and scores on the Expressive Vocabulary Inventory and the Children's Auditory Discrimination Inventory, developed by Stern. The only significant

difference obtained indicated that the structured method was superior to the traditional method ($p. < .10$) on labeling for the low language children.

EDUCATIONAL IMPLICATIONS

The evidence reviewed here suggests that there are two complementary aspects to language. The first involves its use for cognitive purposes and the second its structural features. The acquisition of structure occurs at a young age, i.e., it is acquired very rapidly. As McNeil (1966, p. 99) points out:

> At the age of eighteen months or so, children begin to form simple two and three word sentences. At four, they are able to produce sentences of almost every conceivable syntactic type. In approximately thirty months, therefore, language is acquired or at least the part of it having to do with syntax.

While dialect differences are readily recognized, there is no firm evidence that any subcultural dialect lacks the structural potential for the cognitive functioning necessary for success in school. There is some evidence that culturally disadvantaged children who speak a nonstandard dialect comprehend the standard dialect which they do not use. There is also considerable evidence that these nonstandard speakers systematically impose their dialect distinctions on standard English. In view of this, it is unrealistic, and possibly unjust, to expect such children to substantially modify their speech habits during school hours. Any dialect reflects social expectations and forces which transcend school; if what the school demands and what the larger community has taught and expects are in conflict, the school will take second place.[8]

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[8] That the child's immediate society should affect school practices and expectations is generally accepted in middle- and upper-class communities where school administrators are very sensitive to public opinion.

On the basis of the preceding comments, we suggest that prospective teachers whose own dialects differ from those of the children whom they will teach should be taught the relevant differences. A main goal of this instruction should be to insure that the prospective teacher understands that any dialect is due respect both interpersonally and culturally. As we have indicated, in the teaching of reading both the teacher and the pupil face some very real problems. Teacher workshops and programs in urban teacher training might be useful in making explicit possible sources of confusion.

Another concern is the widespread belief in the homogeneity of subcultural language differences. Research efforts have barely begun to scratch the surface of this knotty problem. Again, teacher training institutions and general policy making bodies must recognize that groups labeled "culturally disadvantaged" differ widely. These differences along with educationally relevant strengths and weaknesses must be specified and noted. The kind of information which Lesser et al. (1968) provide must be taken into consideration. One beginning which could be made immediately is to report the IQ scores of individual children of different groups in terms of the score patterns of their subcultural group. Meyer, at Syracuse University, will soon have some findings of this sort (personal communication).

In addition, the intervention researcher should begin reporting the types of items which account for IQ gains presumably resulting from his intervention. If this can be done, it will aid in the design of intervention which will maximally benefit the child. Finally, basic to all of the above is the necessity for a major effort directed toward test development for the purpose of language assessment. Until we have more

than IQ gain scores, the task of specifying appropriate treatments or desirable types of gains is impossible. More time should be spent attempting to evaluate the specific tasks which are the objectives of instruction. Until we can determine whether the children are mastering the curriculum, we have little reason to expect gains in other areas. We feel that funding agencies should not support research which does not clearly specify the treatment and spell out evaluation procedures consistent with the treatment and its objectives. A general desire to help is always to be lauded. An <u>effective</u> desire to help, however, recognizes the necessity for stating what is to be changed, how it is to be changed, and how the success or failure of the venture is to be judged.

The problem of generalizing from intervention research to the real world of the school classroom deserves comment at this point. All intervention programs are made up of many features, e.g., teacher behaviors, reinforcement techniques, curriculum, teacher-pupil ratio, and the like, in addition to the characteristics of the children. We must address ourselves to the evaluation of the various aspects of pilot intervention programs in terms of their applicability to the real-world school. For instance, how important is a low teacher/pupil ratio? If it is important, then we should be willing to expend the necessary resources to insure a low ratio in the school. Making such a decision in an intelligent manner, however, implies that we have attempted to determine reasonable answers through our research. The same argument applies to all other facets of educational intervention. Above all, it should be made absolutely clear that our most valuable resources are human resources. It is with this as the reference point that decisions should be made.

RECOMMENDATIONS FOR EDUCATIONAL PRACTICE

We would suggest at the outset that, for any skill acquisition requiring formal teaching, the language understanding necessary for instruction be made explicit. In reading, for instance, there is a very important basic vocabulary necessary to communicate to the child what is required. It has been shown, for example, that the definition of "same" and "different" varies according to the referent. If we turn a coffee cup with the handle to our left or right, it is still the "same" coffee cup. But, if we rotate a lower case /d/ 180 degrees on a horizontal plane, it becomes a lower case /b/, i.e., it is "different" (see Caldwell and Hall, 1969). Thus, the rules governing same and different in the child's usual experience do not apply to differences between letters. We would suggest that these areas of possible confusion be made explicit to teachers.

The emphasis should be on communication between the teacher and the child. This emphasis is consistent with the ordering of language objectives for children suggested by Labov (1967a). These were:

1. Ability to understand spoken English (of the teacher)
2. Ability to read and comprehend
3. Ability to communicate (to the teacher) in spoken English
4. Ability to communicate in writing
5. Ability to write in standard English grammar
6. Ability to spell correctly
7. Ability to use standard English grammar in speech
8. Ability to speak with a prestige pattern of pronunciation (and avoid stigmatized forms)

Notice that speech production comes after comprehension. Further, note that pattern of pronunciation is last on the list. Too often, we have attempted to change the most superficial and most obvious differences when they are the least important. The attainment of the above abilities would require a long term effort. We feel that the most useful

conclusion to be drawn from data on "one shot" compensatory programs is that they are a waste of time and money.

We also recommend that intervention programs more directly involve parents, i.e., the child's larger community. As pointed out previously, the role of the school must be congruent with the expectations of the larger community if the impact of the school is to be maximal. John (1967) has noted that schools unto themselves are unlikely to educate anyone adequately. Implicit in this view is the notion that students acquire much of their information from nonschool environments.

Understanding of nonschool influences on language use is just beginning, (e.g., Olim, Hess, and Shipman, 1965; Hess, Shipman, and Jackson, 1965; Bernstein 1964). But we know that skills and specific knowledge are acquired out of school, including, as Bernstein has stated, the way the child perceives and defines his social reality. It must be emphasized that parental intervention is extremely difficult to put into effect but the payoff may be very great. A final word of caution concerns the type of parental involvement encountered in the integrated school where different subcultures are represented. We see limited effectiveness for such a program and even some potential difficulties. For example, the middle-class housewife working with a lower-class child may be concerned with superfluous changes.

One of the most important questions concerns the age at which intervention should take place. The present writers must be honest and admit that there is no single answer to this question. The question, if answerable at all, must be considered in the context of the kind of changes which the school intends to bring about and the resources available. For instance, evidence concerning nutrition indicates that pre-

natal environment may be extremely important for long term intellectual development (see Jensen, 1969; Birch et al., 1967). On the other hand, we already have many children reaching school age who must be educated starting where they are. As yet we do not know what their limitations may be. From present knowledge, we would suggest that there is no strong evidence to support extremely early language intervention in the form of schooling. On the other hand, the potentials of home intervention programs using the subcultural dialect (e.g., television, home visitors training the parents) seem to be well worth exploring.

In addition, we need very specific measuring instruments to determine the kinds of knowledge with which these children come to school. For instance, the present authors have evidence from an integrated school that kindergarten lower-class children (white and black) do not know the alphabet while middle-class children know it well. Furthermore, we have observed second-grade classes where children are in reading groups with books open but upside down. In such cases, the teachers were not aware of the problems. Here, specific abilities in the use of language could be taught so that progress might be made.

Unfortunately, we cannot suggest any one curriculum which has proven itself or any instructional principles which will end all of the problems. The best evidence we have is that carefully planned curricula based on specific objectives with constant measurement have been most successful.

Concerning recommendations for future programs, we suggest that the interventionist-researcher must consider how he views the problems he wishes to change prior to intervening. He must do this in order that his treatment be consistent with the diagnosis. By diagnosis we mean as precise a statement as possible describing both the problem observed

and the basis for the problem. From such a description, one can attempt to determine how resistant to change the behavior and its basis might be. An example will clarify the point. If we consider language use patterns as manifestations of a broad underlying social system, then we would anticipate such patterns to be very resistant to change unless the social system changed (cf. Bernstein, 1968). Alternatively, if we view language use patterns as learned tools which serve cognitive skills and are necessary for educational achievement, then we would feel that change could be instituted through the school system and that the learned language patterns might ultimately affect the social system.

In summary, one's view of the problem and of the basis for that problem will determine the kind of intervention required both in scope and duration.

In discussing the "trapped administrators" (administrators who must show gain to keep their jobs) Campbell (1969, p. 428) comments that they are ". . . so committed in advance to the efficacy of the reform that they cannot afford honest evaluation." In contrast, "Educational administrators have justified the reform on the basis of the importance of the problem, not the certainty of their answer, and are committed to going on to other potential solutions if the one first tried fails (p. 428)." We would conclude by pointing out that if intervention attempts are ever to be fruitful, experimental administrators are needed. The degree to which there is commitment to the amelioration of social ills will be revealed by the degree to which support is given to honest evaluation which allows for the possibility of finding failure.

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